UNITED STATES PATENT AND TRADEMARK OFFICE

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/659,792	09/11/2003	Eli Abir	101205.55175C6	5628

23911   7590   01/28/2010
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EXAMINER
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ART UNIT	PAPER NUMBER
2626	

MAIL DATE	DELIVERY MODE
01/28/2010	PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

		Application No.	Applicant(s)
Office Action Summary		10/659,792	ABIR, ELI
		Examiner	Art Unit
		SAMUEL G. NEWAY	2626
-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --			

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE <u>3</u> MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.
- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
  Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1) ☒ Responsive to communication(s) filed on <u>11 December 2009</u>.

2a) ☐ This action is **FINAL**.   2b) ☒ This action is non-final.

3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4) ☒ Claim(s) <u>30-41,45-59 and 237-239</u> is/are pending in the application.

    4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5) ☐ Claim(s) <u>49-56</u> is/are allowed.

6) ☒ Claim(s) <u>30-41,45-48,57-59 and 237-239</u> is/are rejected.

7) ☐ Claim(s) _____ is/are objected to.

8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9) ☐ The specification is objected to by the Examiner.

10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.

    Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

    Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

    a) ☐ All   b) ☐ Some * c) ☐ None of:

      1. ☐ Certified copies of the priority documents have been received.

      2. ☐ Certified copies of the priority documents have been received in Application No. _____.

      3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

    * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)

2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)

3) ☐ Information Disclosure Statement(s) (PTO/SB/08)
    Paper No(s)/Mail Date _____.

4) ☐ Interview Summary (PTO-413)
    Paper No(s)/Mail Date. _____.

5) ☐ Notice of Informal Patent Application

6) ☐ Other: _____.

DETAILED ACTION

1.   This is responsive to the RCE filed on 11 December 2009.

2.   Claims 30-41, 45-59, and 237-239 remain pending and are considered below.

Response to Arguments

3.   Applicant's arguments filed 23 September 2009 have been fully considered but

they are not persuasive.

        Applicant argues that Grefenstette in view of Koehn does not render the claims

obvious, specifically noting that "Applicants' claims 30, 32-34, 36-38, 40-41 and 237-239

recite an invention that instead generates all combinations of translations for individual

words in a word string of any length - not a single word, as disclosed in Koehn". In other

words, Applicant argues that Koehn's compound German word does not read on "a

string of words". The Examiner respectfully disagrees. As noted by the Applicant,

German compound words "are (by nature of the German language) idiomatic phrases

which necessarily are combined of two related words. Thus, Koehn discloses is a bi-

gram disambiguation model - disambiguating a single word based on a word next to that

word (in this case the two sections of the compound word)". Thus, as admitted by

Applicant, a German compound word is a string composed of words.

        Applicant also argues that "the combination of Koehn and Grefenstette teaches

away from idea of claims 30, 32-34, 36-38, 40-41 and 237-239 because applying Koehn

would change the correct result of translating "groupe de travail" to an incorrect result".

The Applicant further strengthens this argument by noting that if "the illustration in

Koehn to search the component words of the compound Unschuldsvermutung is

applied to translate the words of the noun phrase "groupe de travail" separately without

regard to the order of the individual words, inaccurate results would be returned. For

example, if word order restrictions imposed by Grefenstette are eliminated and a search

is conducted (using Google for instance) for both "work group" and the same words in

reverse order, "group work", group work has a higher frequency ("work group" has over

2.9 Million references but "group work" has over 3.5 Million)".

        The Examiner respectfully disagrees. First, the combination is feasible, as shown

by the example given by the Applicant, and there is no teaching in Grefenstette against

the possibility of changing the order of the individual words in analyzing a corpus.

Second, an "incorrect result" is a misnomer in the current situation. Both Koehn and

Grefenstette and the invention as claimed are directed to translating each word of a

query into a second language, forming word strings in the second language using the

translations and determining the word string translation with the highest frequency. It is

hoped that this will give a good translation, but depending on context the result may not

be very accurate. In Grefenstette, "work group" was found to be the result with the most

count. However, Grefenstette notes that "working group" is the preferred translation

(page 3, bottom of page reference 4). Further, as disclosed by Koehn (page 712,

section 4), the syntactic form of compound in English are such that it is desirable to

search for different orders of individual words in analyzing a corpus. For example,

"innocence presumption" and "presumption of innocence" are both valid and sensible

word strings. Thus it would have been obvious to one with ordinary skill in the art to

have formed Grefenstette's word strings without regard for the combination or order of
the words.

4.   Claims 30-41, 45-56, and 237-239 are objected to because of the following
informalities: claim 30 recites the newly added limitation "wherein said analyzing only
identifies word strings having translations obtained from a user defined minimum
number of words expressed in the first language in said identifying step <u>without regard
for the combination or order of the words</u>" (emphasis added). It is not clear whether the
underlined words are first or second language words. It is believed the limitation should
read as follows and will treated as such 'wherein said analyzing only identifies word
strings having translations obtained from a user defined minimum number of words
expressed in the first language in said identifying step without regard for the
combination or order of the words in said corpus'. It is noted that changing the order of
the words in the first language and then finding their translations in the second language
gives the same result as first finding the translations (without changing the order) and
changing the order of the translations.

          All the independent claims suffer from the same deficiency and the dependent
claims are objected as they depend upon objected claims.

Claim Rejections - 35 USC § 101

5.   35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

6.   Claims 30-33, 45-48, 57-59, and 237 are rejected under 35 U.S.C. 101 because the claimed invention is directed to non-statutory subject matter.

Claims 30-33, 45-48, 57-59, and 237 are rejected under 35 U.S.C. 101 as not falling within one of the four statutory categories of invention. Supreme Court precedent (*Diamond v. Diehr*, 450 U.S. 175, 184 (1981); *Parker v. Flook*, 437 U.S. 584, 588 n.9 (1978); *Gottschalk v. Benson*, 409 U.S. 63, 70 (1972); *Cochrane v. Deener*, 94 U.S. 780, 787-88 (1876)) and recent Federal Circuit decisions (*In re Bilski*, 88 USPQ2d 1385 (Fed. Cir. 2008)) indicate that a statutory "process" under 35 U.S.C. 101 must (1) be tied to another statutory category (such as a particular apparatus), or (2) transform underlying subject matter (such as an article or material) to a different state or thing. While the instant claim recites a series of steps or acts to be performed, the claim neither transforms underlying subject matter nor positively ties to another statutory category that accomplishes the claimed method steps, and therefore does not qualify as a statutory process.

For example, in claim 30, the knowledge base creating method including steps of providing a translation and a corpus, receiving a query, identifying translations for the query, analyzing a corpus, and returning a list does not transform underlying subject matter to a different state or thing and is of sufficient breadth that it would be reasonably interpreted as a series of steps completely performed mentally, verbally or without a machine. A human being can receive a query in a first language, determine second language translations for each word by consulting a translation dictionary, analyze a

corpus to identify word strings composed of the determined second language words,

and return the identified word strings.

Claim Rejections - 35 USC § 103

7.   The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all

obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

8.   Claims 30, 32-34, 36-38, 40, 41, and 237- 239 are rejected under 35 U.S.C.

103(a) as being unpatentable over Grefenstette ("The World Wide Web as a Resource

for Example-Based Machine Translation Tasks", Proceedings of Translating and the

Computer 21 Conference, London, UK, Nov. 1999) in view of Koehn et al ("Estimating

Word Translation Probabilities from Unrelated Monolingual Corpora Using the EM

Algorithm", Proceedings of the Seventeenth National Conference on Artificial

Intelligence and Twelfth Conference on Innovative Applications of Artificial Intelligence,

pages 711-715, August 2000).

Claim 30:

Grefenstette discloses a method for creating a knowledge base of associated

ideas comprising the steps of:

providing a translation of words expressed in a first language to words and/or

strings of words expressed in a second language ("Oxford-Hachette French-English

dictionary", page 2, paragraph 2);

providing a corpus of documents expressed in said second language ("World
Wide Web can be considered as extremely large corpus", page 1, Introduction,
paragraph 2);

receiving a query to be analyzed, wherein said query is expressed in said first
language, and wherein said query consists of string of words ("French noun phrase
groupe de travail", page 2, paragraph 2);

identifying for said query, all translations of each word comprising said word
string query, to said second language utilizing said provided translation ("the French
word *groupe* can be translated by the English words *cluster, group, grouping, concern
and collective*", page 2, paragraph 2);

analyzing said corpus of documents for word strings expressed in said second
language ("AltaVista search portal allows the Web browser user to search ...", page 3,
paragraph 1), wherein said analyzing only identifies word strings having a user defined
maximum number of words (page 3, Table 2 and related text. Note that in this case the
maximum number is two since all word strings searched are composed of two words),
and wherein said analyzing only identifies word strings having translations obtained
from a user defined minimum number of words expressed in the first language in said
identifying step ("French noun phrase *groupe de travail*... ", page 2, paragraph 2. Note
the minimum number is two since the word strings corresponding to the French words
groupe and travail are identified), wherein said analyzing only counts one of the
possible translations for each of said words expressed in the first language ("Combining

the possible translations ... into all twenty-one possible noun phrases", page 3,

paragraph 1); and

returning a list of said word strings expressed in said second language from said

analyzing said corpus of documents as word string results (page 3, Table 2 and related

text).

However, Grefenstette does not explicitly disclose identifying word strings in the

corpus without regard for the combination or order of the words in said second corpus.

In a similar natural language machine translation method, Koehn discloses

identifying word strings in a corpus without regard for the combination or order of the

words in said second corpus (page 713, col. 1, table on top and related text).

It would have been obvious to one with ordinary skill in the art at the time of the

invention to have identified Grefenstette's word strings without regard for the

combination or order in the corpus in order to take into account the fact that the order of

words in the second language may be different than the order of their translations in the

second (see Koehn page 712, col. 2, section 4).

Claim 32:

Grefenstette and Koehn disclose the method of claim 30, Grefenstette further

discloses where a word expressed in a first language includes certain word strings in

the first language such as idioms, fixed-phrases, and other collocations ("French noun

phrase *groupe de travail*", page 2, paragraph 2).

Claim 33:

Grefenstette and Koehn disclose the method of claim 30, Grefenstette further

discloses ranking said list of word string results based on user-defined criteria (page 3,

Table 2 and related text).

Claim 34:

Grefenstette discloses a computer device including a processor, a memory

coupled to the processor, and a program stored in the memory, wherein method the

computer is configured to execute the program (page 2, second paragraph. Note that a

processor, memory, and a program are inherent in a computer used for the machine

translation using the internet) and perform the steps of:

providing a translation of words expressed in a first language to words and/or

strings of words expressed in a second language ("Oxford-Hachette French-English

dictionary", page 2, paragraph 2);

providing a corpus of documents expressed in said second language ("World

Wide Web can be considered as extremely large corpus", page 1, Introduction,

paragraph 2);

receiving a query to be analyzed, wherein said query is expressed in said first

language, and wherein said query consists of string of words ("French noun phrase

groupe de travail", page 2, paragraph 2);

identifying for said query, all translations of each word comprising said word

string query, to said second language utilizing said provided translation ("the French

word *groupe* can be translated by the English words *cluster, group, grouping, concern

and collective*", page 2, paragraph 2);

analyzing said corpus of documents for word strings expressed in said second language ("AltaVista search portal allows the Web browser user to search …", page 3, paragraph 1), wherein said analyzing only identifies word strings having a user defined maximum number of words (page 3, Table 2 and related text. Note that in this case the maximum number is two since all word strings searched are composed of two words), and wherein said analyzing only identifies word strings having translations obtained from a user defined minimum number of words expressed in the first language in said identifying step ("French noun phrase *groupe de travail…* ", page 2, paragraph 2. Note the minimum number is two since the word strings corresponding to the French words groupe and travail are identified), wherein said analyzing only counts one of the possible translations for each of said words expressed in the first language ("Combining the possible translations … into all twenty-one possible noun phrases", page 3, paragraph 1); and

returning a list of said word strings expressed in said second language from said analyzing said corpus of documents as word string results (page 3, Table 2 and related text).

However, Grefenstette does not explicitly disclose identifying word strings in the corpus without regard for the combination or order of the words in said second corpus and returning the list without regard for the combination or order in the second language strings of the second language words corresponding to translations of the works in the first language query.

In a similar natural language machine translation method, Koehn discloses identifying word strings in the corpus without regard for the combination or order of the words in said second corpus and returning a list of word strings expressed in a second language from analyzing a corpus of documents as word string results without regard for the combination or order in the second language strings of the second language words corresponding to translations of the works in a first language query (page 713, col. 1, table on top and related text).

It would have been obvious to one with ordinary skill in the art at the time of the invention to have identified Grefenstette's word strings without regard for the combination or order in the corpus and to have returned Grefenstette's list without regard for the combination or order in the second language strings of the second language words corresponding to translations of the works in a first language query in order to take into account the syntactic form of compounds in the second language or in other words to take into account the fact that the order of words in the second language may be different than the order of their translations in the second (see Koehn page 712, col. 2, section 4).

Claim 36:

Grefenstette and Koehn disclose the computer device of claim 34, Grefenstette further discloses where a word expressed in a first language includes certain word strings in the first language such as idioms, fixed-phrases, and other collocations ("French noun phrase *groupe de travail*", page 2, paragraph 2).

Claim 37:

Grefenstette and Koehn disclose the computer device of claim 34, Grefenstette further discloses ranking said list of word string results based on user-defined criteria (page 3, Table 2 and related text).

Claim 38:

Grefenstette discloses a computer readable storage medium having stored thereon a program executable by a computer processor for performing the steps of (page 2, second paragraph. Note that a processor, memory, and a program are inherent in a computer used for the machine translation using the internet):

providing a translation of words expressed in a first language to words and/or strings of words expressed in a second language ("Oxford-Hachette French-English dictionary", page 2, paragraph 2);

providing a corpus of documents expressed in said second language ("World Wide Web can be considered as extremely large corpus", page 1, Introduction, paragraph 2);

receiving a query to be analyzed, wherein said query is expressed in said first language, and wherein said query consists of string of words ("French noun phrase *groupe de travail*", page 2, paragraph 2);

identifying for said query, all translations of each word comprising said word string query, to said second language utilizing said provided translation ("the French word *groupe* can be translated by the English words *cluster, group, grouping, concern and collective*", page 2, paragraph 2);

analyzing said corpus of documents for word strings expressed in said second language ("AltaVista search portal allows the Web browser user to search ...", page 3, paragraph 1), wherein said analyzing only identifies word strings having a user defined maximum number of words (page 3, Table 2 and related text. Note that in this case the maximum number is two since all word strings searched are composed of two words), and wherein said analyzing only identifies word strings having translations obtained from a user defined minimum number of words expressed in the first language in said identifying step ("French noun phrase *groupe de travail...* ", page 2, paragraph 2. Note the minimum number is two since the word strings corresponding to the French words groupe and travail are identified), wherein said analyzing only counts one of the possible translations for each of said words expressed in the first language ("Combining the possible translations ... into all twenty-one possible noun phrases", page 3, paragraph 1); and

returning a list of said word strings expressed in said second language from said analyzing said corpus of documents as word string results (page 3, Table 2 and related text).

However, Grefenstette does not explicitly disclose identifying word strings in the corpus without regard for the combination or order of the words in said second corpus and returning the list without regard for the combination or order in the second language strings of the second language words corresponding to translations of the works in the first language query.

In a similar natural language machine translation method, Koehn discloses identifying word strings in the corpus without regard for the combination or order of the words in said second corpus and returning a list of word strings expressed in a second language from analyzing a corpus of documents as word string results without regard for the combination or order in the second language strings of the second language words corresponding to translations of the works in a first language query (page 713, col. 1, table on top and related text).

It would have been obvious to one with ordinary skill in the art at the time of the invention to have identified Grefenstette's word strings without regard for the combination or order in the corpus and to have returned Grefenstette's list without regard for the combination or order in the second language strings of the second language words corresponding to translations of the works in a first language query in order to take into account the syntactic form of compounds in the second language or in other words to take into account the fact that the order of words in the second language may be different than the order of their translations in the second (see Koehn page 712, col. 2, section 4).

Claim 40:

Grefenstette and Koehn disclose the computer readable storage medium of claim 38, Grefenstette further discloses where a word expressed in a first language includes certain word strings in the first language such as idioms, fixed-phrases, and other collocations ("French noun phrase *groupe de travail*", page 2, paragraph 2).

Claim 41:

Grefenstette and Koehn disclose the computer readable storage medium of claim 38, Grefenstette further discloses ranking said list of word string results based on user-defined criteria (page 3, Table 2 and related text).

Claim 237:

Grefenstette and Koehn disclose the method of claim 30, Grefenstette further discloses where the returned word strings in said second language are ranked by minimal number of words that are not translations of the words in the input query string (page 3, Table 2 and related text. Note that in this case the minimal number is zero for all input query string).

Claim 238:

Grefenstette and Koehn disclose the computer device of claim 34, Grefenstette further discloses where the returned word strings in said second language are ranked by minimal number of words that are not translations of the words in the input query string (page 3, Table 2 and related text. Note that in this case the minimal number is zero for all input query string).

Claim 239:

Grefenstette and Koehn disclose the computer readable storage medium of claim 38, Grefenstette further discloses where the returned word strings in said second language are ranked by minimal number of words that are not translations of the words in the input query string (page 3, Table 2 and related text. Note that in this case the minimal number is zero for all input query string).

9.   Claims 31, 35, and 39 are rejected under 35 U.S.C. 103(a) as being

unpatentable over Grefenstette ("The World Wide Web as a Resource for Example-

Based Machine Translation Tasks", Proceedings of Translating and the Computer 21

Conference, London, UK, Nov. 1999) in view of Koehn et al ("Estimating Word

Translation Probabilities from Unrelated Monolingual Corpora Using the EM Algorithm",

Proceedings of the Seventeenth National Conference on Artificial Intelligence and

Twelfth Conference on Innovative Applications of Artificial Intelligence, pages 711-715,

August 2000) and in further view of Tominaga (USPN 5,311,429).

        Claims 31, 35, 39:

        Grefenstette and Koehn disclose the method of claim 30, Grefenstette further

discloses wherein said word strings expressed in said second language have at least a

first portion and a second portion, and wherein said list represents associations of said

query in said first language to expressions in said second language (page 3, Table 2

and related text), but Grefenstette and Koehn do not explicitly disclose examining said

list of returned word string results for occurrences wherein any two said returned word

string results have overlapping said first and second portions; combining all of said two

overlapping returned word strings into third word strings, wherein said third word strings

are a combination of said first word strings and said second word strings, merging said

overlapped words; and adding all said third word strings to said list of said word string

results.

        In a similar language processing method used for translations, Tominaga

discloses examining a list of word string (sentences) for occurrences wherein any two

word strings have overlapping first and second portions; combining all of the two overlapping returned word strings into third word strings, wherein said third word strings are a combination of the first word strings and the second word strings, merging the overlapped words(col. 14, lines 42-61; Fig. 14 and related text); and adding all the third word strings to a list (sentence file, Fig. 2, element 1 and related text) of said word string results.

It would have been obvious to one with ordinary skill in the art at the time of the invention to generate new translation candidates by combining word strings with overlapping portions in Grefenstette and Koehn's method in order to "easily perform maintenance of information about co-occurrence relation in dictionary information" (Tominaga, col. 2, lines 30-34).

Allowable Subject Matter

10.   Claims 49-56 are allowed.

11.   The following is an examiner's statement of reasons for allowance: the prior art of record, individually or in combination, does not disclose using two different corpus and identifying word strings in a first list as subset of word strings in a second list as claimed.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to SAMUEL G. NEWAY whose telephone number is (571)270-1058. The examiner can normally be reached on Monday - Friday 8:30AM - 5:30PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David R Hudspeth can be reached on 571-272-7843. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

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Supervisory Patent Examiner, Art Unit 2626

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Examiner, Art Unit 2626